Delphi Adaptive Cruise Control

Delphi has applied more than 50 years of cruise control experience and more than 20 years of radar experience to develop its innovative Adaptive Cruise Control System (ACC). Leveraging expertise gained from its first-to-market radar-based system in 1999, Delphi's ACC system is enabled by an electronically scanning radar and has evolved to include a Stop & Go feature.

The same multimode electronically scanning radar that enables ACC, can also enable forward collision warning with pre-crash sensing, brake support and headway alert, helping reduce cost and make the innovative safety systems consumers desire more affordable.

ACC automatically adjusts vehicle speed to maintain a driver-specified headway gap from the vehicle ahead. With Stop & Go, the usefulness of ACC is expanded for high-congestion, stop-and-go traffic. ACC with Stop & Go manages speed to a complete stop and resumes the set speed based on driver input such as touching the gas pedal or resume button. Headway Alert even warns drivers when their vehicle is less than one-second away from the vehicle ahead, helping them to avoid tailgating.

Forward Collision Warning alerts drivers to slower moving and stopped traffic ahead so that they can take evasive action, while pre-crash sensing and brake support enhance occupant protection by helping to reduce the severity of unavoidable frontal crashes.

Benefits

- Makes cruise control more useable in most traffic conditions resulting in a more relaxed driving experience
- Helps relieve driver fatigue induced by congested and stop-and-go traffic
- Manages vehicle speed and headway gap using throttle control and limited braking (up to 0.3 g), including fully stopped conditions
- Conveniently manages vehicle speed and headway gap
- Complements vehicle styling
- Operates under a wide range of environmental conditions (dirt, ice, daylight, darkness, rain, and fog)

Electronically scanning radar (ESR) enables the following features:

- Adaptive Cruise Control with Stop & Go
  - Enhances driver convenience
  - Reduces driver workload
- Forward Collision Warning
  - Helps reduce the potential for an accident and injury
- Brake Support
  - Helps reduce the potential for an accident and injury
  - Helps reduce the potential for property damage
- Headway Alert
  - Provides distance information
  - Alerts driver when the preset time-gap to vehicle ahead is violated
The Delphi Advantage

- Multimode electronically scanning radar
  - Lower-cost: Simultaneous long- and mid-range functionality allows one radar to be used for multiple safety systems helping to keep safety system cost down
  - Solid-state: Technology is extremely reliable and is resistant to vibration
  - Class-leading performance and durability
    - Innovative design provides excellent multi-target discrimination plus precise range, approach speed and angle data
    - Dual-mode classification enhances object reliability
    - Simultaneous Transmit and Receive Pulse Doppler (STAR PD) Waveform provides independent measurements of range and range-rate and superior detection of clustered stationary objects
  - Compact design makes it easier to locate the sensor on the vehicle without compromising vehicle styling
  - Proven manufacturing processes increase affordability for high-volume automotive segments where radar systems have not previously been available

Wide mid-range coverage not only allows vehicles cutting in from adjacent lanes to be detected but also identifies vehicles and pedestrians. Long-range coverage provides accurate range and speed data with effective object discrimination.

The radar module, including electronics, measures just 173.7 x 90.2 x 49.2 millimeters including mounting features.